

**Patent claims**

1. A method for producing a spindle nut (2), in particular of a ball screw, which is provided on its circumference with at least one through-opening (7) for receiving a deflecting piece (8), wherein a hole punch (19) which is arranged within the spindle nut (2) punches out the through-opening (7) from radially inward to radially outward through the casing of the spindle nut (2).

2. The method as claimed in claim 1, in which a punching tool comprising the hole punch (19) also comprises a threaded spike (18), the thread profile (20) of which is formed as a negative profile in relation to an inner thread of the spindle nut (2) forming a thread groove (6) for balls (3), the hole punch (19) being arranged radially displaceably in the threaded spike (18), and the spindle nut (2) being arranged on the threaded spike (18), whereupon the hole punch (19) is moved radially outward out of the threaded spike (18).

3. The method as claimed in claim 1, in which the cut portion (16) of the punching operation is formed radially on the inside of the wall (13) of the through-opening (7).

4. The method as claimed in claim 1, in which a torn-out portion (17) of the punching operation is formed radially on the outside of the wall (13) of the through-opening (7).

5. The method as claimed in claim 1, in which the punching draw-in (15) is formed on the radially inner rim of the through-opening (7).

6. A ball screw with a spindle nut (2) arranged on a spindle (1), and also with balls (3), which are arranged in such a way that they can roll in a thread path (4), the thread path (4) being formed by a thread groove (5) formed on the spindle (1) and by a thread groove (6) formed on the spindle nut (2), and with at least one deflecting piece (8), which is arranged in a through-opening (7) of the spindle nut (2) and has a deflecting channel (9) for the return of the balls (3) respectively from a run-out end (10) to a run-in end (11) of at least one common turn (12) of the thread path (4), wherein the rim (14) of the through-opening (7) lying on the inner circumference of the spindle nut (2) has a convex rounding (15).

7. The ball screw as claimed in claim 6, in which the convex rounding (15) of the edge is formed at the transition from the through-opening (7) to the thread groove (6) of the spindle nut (2).

8. The ball screw as claimed in claim 7, in which material of the spindle nut (2) is drawn or forced from radially inward to radially outward, thereby forming the rounding (15).